

AMENDMENTS TO THE CLAIMS

1-15 (Canceled)

16. (Currently Amended) A process for forming hydrogen from a feedstock comprising the steps of:

preheating a feedstock;

providing said feedstock to an endothermic reaction reactor;

providing combustion gas to burn stoichiometrically with said feedstock

allowing sufficient residence time for said feedstock in said reactor to undergo an endothermic reaction to yield hydrogen and an endothermic reaction product;

transferring said hydrogen and said endothermic reaction product to a secondary stage membrane reactor; and

collecting from said secondary stage membrane reactor a purified hydrogen flow passing through a membrane of said secondary stage membrane reactor to a purified hydrogen side and a raffinate gas stream.

17. (Original) The process of claim 16 wherein said feedstock is preheated within a pump supplied boiler.

18. (Original) The process of claim 17 further comprising the step of metering said feedstock to a burner in thermal communication with said reactor so as to maintain said reactor at a temperature promoting the endothermic reaction.

19. (Original) The process of claim 18 further comprising the step of monitoring reactor temperature and communicating reactor temperature to a computer controller.

20. (Original) The process of claim 19 further comprising the step of monitoring reactor pressure and communicating reactor pressure to said computer controller.

21. (Previously Presented) The process of claim 16 further comprising the step of combusting said rafinate gas flow with a combustion supporting gas in a burner to yield a waste gas stream.

22. (Original) The process of claim 21 further comprising the step of heat exchanging between said waste gas stream and said feedstock so as to preheat said feedstock prior to said reactor.

23. (Canceled)

24. (Original) The process of claim 22 further comprising the step of providing feedstock to said burner so as to heat said reactor.

25. (Previously Presented) The process of claim 21 wherein said combustion supporting gas is provided stoichiometrically burn said rafinate.

26. (Canceled)

27. (Previously Presented) The process of claim 16 wherein said secondary stage membrane reactor is a water gas step membrane reactor operating at a lower temperature than said reactor.

28. (Previously Presented) The process of claim 16 modifying the speed of said feedstock entering said reactor in response to sensing a pressure on said purified hydrogen side of said secondary stage membrane reactor.

29. (Currently Amended) A process for forming hydrogen from a feedstock comprising the steps of:

- preheating a feedstock;
- providing said feedstock to a reactor;
- allowing sufficient residence time for said feedstock in said reactor to undergo an endothermic reaction to yield hydrogen and a reaction product;
- transferring said hydrogen and said reaction product to a secondary stage membrane reactor;
- collecting from said secondary stage membrane reactor a purified hydrogen flow passing through a membrane of said secondary stage membrane reactor to a purified hydrogen side and a raffinate gas stream; and
- modifying the speed of said feedstock entering said reactor in response to ~~sensing a pressure on said purified hydrogen side of said secondary stage membrane reactor~~ downstream hydrogen requirements.

30. (Previously Presented) The process of claim 29 wherein said reactor is an endothermic reactor.